Research Article

Frequency and Types of Foods Advertised on Saturday Morning and Weekday Afternoon English- and Spanish-Language American Television Programs

Robert A. Bell, PhD[1,2]; Diana Cassady, DrPH[2]; Jennifer Culp, MPH, RD[2]; Rina Alcalay, PhD[1,2]

ABSTRACT

Objective: To describe food advertised on networks serving children and youth, and to compare ads on English-language networks with ads on Spanish networks.

Design: Analysis of television food advertisements appearing on Saturday morning and weekday afternoons in 2005-2006. A random sample of 1,130 advertisements appearing on 12 networks catering to Spanish-language, children, youth, Black youth, and general audiences were analyzed.

Main Outcome Measures: Each advertisement was coded for the nature of the item promoted, the selling propositions used, and any nutritional claims made.

Analysis: Cross-tabulations using Fisher's exact test ($P < .05$ criterion).

Results: One-fifth of commercials were for food. Food ads were especially prevalent on Saturday programs and children's networks. Seventy percent of food ads were for items high in sugar or fat. More than one fourth of food advertisements were for fast-food restaurants, which were especially common on MTV and Spanish-language networks. Ads for fruits and vegetables were rare (1.7%). One nutrition-related public service announcement was found for every 63 food ads.

Conclusions and Implications: Food advertisements continue to promote less-healthful items. Until marketing of high calorie, low-nutrient food to children is restricted, education and media literacy remain the best strategies for mitigating advertising effects.

Key Words: food, beverage, advertising, television, children *(J Nutr Educ Behav*. 2009;41:406-413.)

INTRODUCTION

Questions have been raised about the potential role television plays in the obesity epidemic.[1,2] It has been observed that amount of time spent watching television correlates positively with children's body mass index.[3] Watching television is a sedentary activity that may encourage the consumption of high-energy food items and beverages,[4-7] increase meal frequency,[8] promote fast-food restaurant use,[9] and lower fruit and vegetable consumption.[10] Television might also affect viewers' nutritional decisions through messages embedded in entertainment programs.[11] Characters are often shown eating questionable food, usually in the form of unhealthful snacks.[12] Unhealthful food choices also permeate movies, which eventually make their way onto the small screen.[13]

The objective of this study was to describe the messages embedded in food advertisements likely to be seen by children. This focus is justified for 4 reasons. First, food ads constitute deliberate attempts to encourage eating and alter food choices.[13] Second, children are susceptible to advertisements; their exposure is high, they often fail to comprehend marketers' promotional intentions, they ask for advertised products, and they resort to pestering to succeed.[14-17] Third, the food industry devotes most of its marketing dollars to television campaigns.[18] In fact, more than one fourth of advertising on daytime and prime time television is devoted to food and beverage.[19] Fourth, advertisements appearing in programming for children and adolescents are especially likely to promote food high in sugar, fat, or sodium.[20-26] These ads associate food with athleticism, coolness, fun, and happiness.[27]

This study builds upon past research in 2 ways. First, the present sample encompasses food advertising on Spanish-language American programming. Past studies have focused on the content of mainstream English-language American television advertisements. There is no evidence of studies relating to food advertising on Spanish-language American programming. This study aims to fill this gap. An examination of food advertisements in Spanish-language programs is justified because obesity rates are very high among Hispanic-Americans,[28] an association between television viewing and obesity has been found in samples of American Hispanic children,[29] and 9 of 10 Hispanic-Americans use Spanish-language media.[30]

[1]Department of Communication, University of California–Davis, Davis, CA
[2]Department of Public Health Sciences, University of California–Davis, Davis, CA
Address for correspondence: Robert A. Bell, PhD, Department of Communication, University of California–Davis, One Shields Ave, Davis, CA 95616; Phone: (530) 752-5713; Fax: (530) 752-6705; E-mail: rabell@ucdavis.edu

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Second, this study adds to past research by comparing how food is marketed to specific audiences. Most studies have focused on advertisements in a single type of programming, making comparisons of the nature and form of advertising across audience segments challenging. In contrast, the authors examined advertisements airing on networks oriented toward children, adolescents, and black and Hispanic youths to gain insight into how different groups are targeted.

The present research questions fall under 5 sets of issues. First, what proportion of advertisements are for food, and is food advertising more prevalent on some types of networks than others? Second, what types of food are being promoted in these advertisements? Third, is the type of food advertised associated with the language of the advertisement, the kind of network on which it appears, and the time at which it airs? Fourth, what kinds of selling propositions are used to market the food in these advertisements. Fifth, to what extent are food advertisements balanced with pro-nutrition public service announcements (PSAs) and commodity marketing board advertisements such as those sponsored by milk, cheese, or egg producers?

METHODS

Sampling

The unit of observation was the "promotion," defined as a message inserted between 2 segments of a television program or between 2 programs that attempts to increase the attractiveness of a product, service, activity, event, network program, or cause. These messages took the form of product commercials, commodity board advertisements, PSAs, infomercials, or network promotions.

Weekday afternoon (3-6 PM) and Saturday morning (7-10 AM) programming are high viewing times for children and were therefore selected for this analysis.[17] Twelve networks were selected based on ratings. These included highly rated children's cable channels (Nickelodeon, Cartoon Network, Kids' WB) and networks that appeal to older youths (MTV, BET). Programming on BET in the time slots examined tended to target children and youth, often with music videos. Mainstream English-language channels included ABC, CBS, NBC, FOX, and UPN (UPN and WB have since merged). Programming on these networks caters to children on Saturday mornings and to both children and adults on weekday afternoons. Univision and Telemundo, the 2 highest rated Spanish language channels, were also included. Their weekday afternoon programming was for adults (mostly talk and tabloid programs). Saturday morning programming was adult-oriented on Univision and child-oriented on Telemundo.

Days for taping were randomly selected to create 1 week of programming for each channel, and to ensure a representative collection of programming over no less than 3 months. Videotaping occurred between June 2005 and March 2006 in the Sacramento, California metropolitan media market. The final sample consisted of 216 hours (12 networks x 18 hour-long time slots), of which 36 hours were from the 2 Spanish networks and 180 hours were from the 10 English networks.

Coding Process

Coders were the project coordinator and undergraduates majoring in nutrition. Several coders were bilingual, and all received extensive training and practice in the use of the coding instrument. Thirty percent of programming in each language was double-coded to assess interrater reliability.

Coding Form

Coding decisions for each advertisement were recorded on a separate printed form that included information about the program, network, and time slot in which the promotion appeared; the language of the promotion; and the form of the promotion (commercial, commodity board advertisement, network promotion, PSA, infomercial). When the promotion was food related, it was coded further into one of the following food categories: alcohol, cereals, chips/crackers, ready-meal convenience food, dairy, fast-food restaurants, fats, fruits/vegetables/100% juices, grains, nutritional supplements, proteins, sugar-added drinks/sodas, sweets, and other (the "other" category consisted largely of water, coffee, and tea). The meaning of 2 categories requires additional explanation. "Fast-food restaurant," was defined as a quick-service restaurant that has counter service only and sells lower-priced entrees. Nutritional supplements included vitamin/mineral tablets, nutrition drinks, and fiber and herbal supplements.

Ads were also coded for the presence of each of the following 5 selling propositions: good value (eg, economical, inexpensive, cheap, low cost); special offers (eg, on sale, buy 1 get 1 free, discount coupons); novelty (new or different kind of item); fun (brings enjoyment, excitement, pleasure to user); and taste (delicious, good mouth feel).

The investigators also coded for the presence of 5 nutrition claims: nutritious, low in calories, promotes weight loss, provides fiber, and provides vitamins or minerals. This coding was based on verbal claims, not nonverbal/visual cues. These categories were adapted from systems reported by other investigators.[21,24,31]

Statistical Analyses

Analyses were carried out using Stata (Release 9, StataCorp LP, College Station, TX, 2005) and made use of descriptive statistics and cross-tabulations. Interjudge reliabilities were assessed using Cohen's κ.[32] Several of the cross-tabulations were for larger tables that violated the chi-square distribution assumption that no cell observed or expected frequency fall below 5.0. In such instances, the authors carried out Fisher's exact test for any table with a low observed or expected cell frequency and report here as statistically significant only those results confirmed by this test ($P < .05$ criterion). Sources of significance for statistically significant cross-tabulations were identified via an analysis of cell residuals.

RESULTS

Reliabilities

All variables reported in this paper were coded at a "substantial" to

"excellent" level of quality, based on criteria established by Landis and Koch for κ.[33] The mean reliability was 0.83 (range: 0.68-1.0).

Sample Profile

Table 1 provides a profile of the 7,691 promotions sampled. Of total promotional messages, 15.1% (1,162) were related to food; 97.2% of food-related promotions were commercials. Of these food-related promotions, 91.2% were in English, 8.7% were in Spanish, and less than 0.1% (1 commercial) was bilingual. Approximately 19.7% of the promotions classified as product commercials were food related (1,130 of 5,724 commercials). The noncommercial food promotions included commodity board advertisements (n = 14, of which 10 were for milk) and pronutrition PSAs (n = 18).

Prevalence of Food Advertising

The authors first examined whether the likelihood of a commercial being for a food product differed across the networks. The 12 networks were grouped into 5 categories: English-language broadcasting (ABC, CBC, Fox, NBC, UPN), Spanish-language broadcast (Telemundo, Univision), children's programming (Cartoon Network, Nickelodeon, Kids WB), black entertainment programming (BET), and youth programming (MTV).

Ads were significantly more likely to be for food on some networks than others ($P < .001$, see Table 2). A residuals analysis revealed that a commercial was significantly more likely to be about food on the children's networks (31.7% of all ads). Commercials were significantly more likely to be for

Table 1. Description of All Messages and Food Promotions Sampled on Saturday Morning and Weekday Afternoon Television Programs

	All Promotional Messages		Food/Nutrition Promotions	
	Frequencies	**%***	**Frequencies**	**%***
Advertisement language				
English	6,637	86.3	1,060	91.2
Spanish	1,051	13.7	101	8.7
Bilingual	3	0.0	1	0.1
Total	7,691	100.0	1,162	100.0
Type of promotion				
Commercials	5,724	74.4	1,130	97.2
Commodity marketing board	14	0.2	14	1.2
Network promotion	1,582	20.6	0	0.0
Public service announcement	301	3.9	18	1.5
Infomercial	70	0.9	0	0.0
Total	7,691	100.0	1,162	100.0
Network				
ABC	604	7.9	71	6.1
BET	654	8.5	85	7.3
Cartoon Network	636	8.3	194	16.7
CBC	574	7.5	57	4.9
Fox	824	10.7	109	9.4
Kids' WB	529	6.9	104	9.0
MTV	630	8.2	78	6.7
NBC	802	10.4	82	7.1
Nickelodeon	523	6.8	125	10.8
Telemundo	490	6.4	42	3.6
Univision	571	7.4	60	5.2
UPN	854	11.1	155	13.3
Total	7,691	100.0	1,162	100.0
Cable vs Broadcast				
Broadcast	5,412	70.4	723	62.2
Cable	2,279	29.6	439	37.8
Total	7,691	100.0	1,162	100.0
Airing time				
Weekdays (3-6 PM)	6,605	85.9	974	83.8
Saturday (7-10 AM)	1,086	14.1	188	16.2
Total	7,691	100.0	1,162	100.0

*Percentages may not sum to 100.0% owing to rounding error.

Table 2. Number and Percentage of Saturday Morning and Weekday Afternoon Commercials that Were Food Related for Each Network Type, Sorted by Frequency of Occurrence†

Network Type	Number	%
Children's networks	418	31.7**
Spanish-language broadcast networks	92	17.4**
MTV	78	16.1*
English-language broadcast networks	458	16.0**
BET	84	15.7*
Total	1,130	19.7

*$P < .05$, **$P < .001$, based on an analysis of cell residuals; †Total sample size, n = 5,724 commercials, of which 1,130 were food-related commercials. This analysis excludes infomercials, commodity marketing board promotions, network promotions, and public service announcements.

food on cable programming than on broadcast programming (24.9% vs 17.5%, $P < .001$), a finding that reflects the presence of 2 children's programming stations in the "cable" classification. English- and Spanish-language commercials did not differ in their likelihood of being a food advertisement (20.0% and 17.5% of ads respectively, $P < .21$). Finally, commercials were more likely to be for food when they appeared on Saturday mornings (24.0%) than on weekday afternoons (19.1%, $P < .001$).

Types of Food Advertised

Table 3 reports the kinds of food advertised, sorted by frequency of occurrence. Fast food was the most common type of food represented, followed by cereals, sweets, sugar-added beverages, and chips/crackers (90.1% of cereal ads were for "sugar-added cereals"). Thus, 70.5% of the food commercials fell into 5 categories characterized by high fat or sugar content. When crackers and low-sugar cereals are excluded from this analysis, the figure remains high at 64.4% of ads.

Commercials for nutritional supplements, convenience food items, dairy products, grains, proteins, and fruits/vegetables/juices, and fats/oils were rare (see Table 3). The authors note that commercials for the fruits and vegetables category were dominated by fruit juices (73.7% of cases), which may be less beneficial than whole fruit.[34] Least common were advertisements for alcohol, a finding that may reflect the time periods sampled. Earlier studies have found a higher incidence of alcohol advertisements in evening programming.[35]

Table 3. Frequency of Saturday Morning and Weekday Afternoon Television Food Commercials Across 14 Food Categories, Sorted by Frequency of Occurrence*

Food Category	Number	%
Fast-food restaurants	321	28.4
Cereal	175	15.5
Sweets	154	13.6
Sugar-added drinks/sodas	74	6.5
Chips/crackers	73	6.5
Nutritional supplements	70	6.2
Convenience food	63	5.6
Dairy	43	3.8
Grains	42	3.7
Other	41	3.6
Proteins	25	2.2
Fruits, vegetables, juices	19	1.7
Fats	17	1.5
Alcohol	13	1.2
Totals	1,130	100.0

*This analysis excludes infomercials, commodity marketing board promotions, network promotions, and public service announcements.

Relationship of Food Advertised with Network Variables

The cross-tabulation between the categorical variables Food Type and Network Type was significant ($P < .001$, data not shown). The cell residuals were examined to isolate sources of significance. Discussion of these analyses will be organized by network classification.

English broadcast networks. For English-language broadcast networks, ads were significantly overrepresented ($P < .05$ criterion) for fast-food restaurants (34.7% vs 28.4% for the entire sample), grains (6.6% vs 3.7%), nutritional supplements (12.7% vs 6.2%), and protein food items (3.7% vs 2.2%). The most striking finding for English-language mainstream broadcast networks was for nutritional supplements; 41% of the food ads appeared on such networks, but 83% of nutrition supplement commercials were on these networks. For these networks, ads were significantly underrepresented ($P < .05$ criterion) for the cereals category (7.0% of ads vs 15.5% for the entire sample), chips/crackers (4.4% vs 6.5%), dairy products (1.7% vs 3.8%), and sweets (8.7% vs 13.6%).

Spanish-language networks. For Spanish-language broadcast networks, 3 significant effects were identified ($P < .05$ criterion). Ads for alcohol were significantly overrepresented (9.8% of ads vs 1.2% for the entire sample). Also significantly overrepresented were ads for fast-food

restaurants; 46.7% of food ads were for fast-food restaurants, compared with 28.4% for the entire sample. Thus, a food ad on Spanish-language programming was 64% more likely to be for fast food than was the case for the sample as a whole. Ads for cereals were significantly underrepresented on these networks (5.4% vs 15.5% for the entire sample).

Children's programming networks. On the children's networks, there was a significant overrepresentation ($P < .05$ criterion) of ads for cereals (30.9% vs 15.5% for the entire sample), chips/crackers (9.8% vs 6.5%), convenience food items (9.8% vs 5.6%), dairy products (6.9% vs 3.8%), and sweets (20.6% vs 13.6%). Significantly underrepresented food categories on children's networks included fast food (13.6% of ads vs 28.4% for the entire sample) and sugar-added beverages (4.5% of ads vs 6.5%); there was a complete absence of ads for alcohol, fats and oils, and nutritional supplements on the children's networks.

BET. Most programs on BET in the time slots analyzed were music video programs targeting young audiences. Ads on BET were significantly ($P < .05$ criterion) more likely than the sample as a whole to be for fats and oils (4.8% vs 1.5% for the entire sample); fruit, juices, and vegetables (4.8% vs 1.7%); and sugar-added beverages (13.1% vs 6.5%). Fast-food restaurants accounted for 25.0% of food ads on BET, but this figure was not significantly different from the sample as a whole.

MTV. Food ads on MTV differed significantly from the sample as a whole for 4 categories ($P < .05$ criterion). Ads on MTV were much more likely to be for fast-food restaurants (52.6% of ads vs 28.4% for the entire sample). Completely absent were advertisements for cereal, convenience food, and dairy products.

Selling Propositions

The authors examined the association between food category and the presence of each of the selling propositions in the advertisements using 4 separate cross-tabulations (data not shown). Significant associations were found for 4 analyses (all values of $P < .001$). Results will be reported only for significant cells based on the analysis of cell residuals ($P < .05$ criterion). The most common appeal was the novelty claim; 28.0% of ads made a claim about the product's newness or uniqueness. Nearly half of novelty claims were found in fast-food restaurant commercials. Also common were special offers, a category that includes coupons, free product, super-size offers, and discounts; 17.3% of ads included such offers. Special offers were significantly more likely to be found in ads for dairy products (39.5% of ads) and fast-food restaurants (34.6% of ads). Appeals to fun were identified in 7.3% of ads and were most likely to be used in ads for chips/crackers (23.3% of ads) and sweets (19.5% of ads). "Good value" propositions were found in only 5.9% of ads, with nearly all instances (60 of 67 cases) being present in fast-food restaurant commercials. Appeals to the taste of the advertised item were found in just 4.1% of ads, with use not being associated with food category. Visual strategies appear to be more likely to be used than words to demonstrate deliciousness.

Nutritional Claims

The association between food category and the presence of each of 5 nutritional claims was assessed in 5 separate cross-tabulations (data not shown). Significant associations were found for all 4 analyses (all values of $P = .002$ or less). Results are reported only for significant cells ($P < .05$ criterion). The most common nutritional claim was that the product provides vitamins and minerals (only 3.7% of commercials). These claims were most likely to be found in advertisements for products in 3 categories (37 of 42 cases): fruits/vegetables/juices, nutritional supplements, and cereals. The claim that a product promotes weight loss was made in just 3.5% of food commercials; 33 of 39 such claims were found in ads for nutritional supplements. The "nutritious" claim was rare, appearing in 3.1% of ads, with all but 1 occurrence falling into the categories cereals (15.4% of cases) and nutritional supplements (10% of cases). A "high in fiber" claim was found in just 2.4% of food commercials. Such claims were found almost exclusively in advertisements for cereals, grains, and nutritional supplements (25 of 27 cases). The "low in calories" claim was found in only 1.6% of ads. This claim was disproportionately more likely to occur in commercials for reduced-calorie convenience foods; 9.5% of ads in this category included a low-calorie claim. The authors coded for many other nutrition claims that are not reported in this paper because of a very low frequency of occurrence.

Public Service Announcements

Only 18 PSAs were identified that promoted nutritious eating or physical activity, or that addressed a nutrition-related issue such as obesity or diabetes.

DISCUSSION

Food advertisements continue to be a prominent feature on the landscape of after-school and Saturday morning television programming. Nearly 1 in 5 advertisements airing during these time periods was for food and nutrition-related products. Across networks, 5.2 food advertisements were presented every hour. Fast-food restaurants, sugary food, chips/crackers, and sugar-added beverages collectively accounted for more than 70% of food commercials; 34% were for "food on the run," fast-food restaurant and convenience food. These results are consistent with earlier investigations that documented the tendency of food advertisements to be for food falling into categories characterized by questionable nutritional value.[20,24]

This study supports the findings of earlier investigators showing that, when compared to television for a general audience, networks for children contain a greater proportion of advertising for food.[23] In this sample children's networks exposed young viewers to 76% more food commercials per hour than did the other networks, with the Saturday morning 7-10 AM time slot being more saturated with food commercials. Approximately 7.7

food commercials per hour appeared in programming on the children's networks, which is approximately 1 food commercial every 8 minutes. Two recent studies also documented high levels of food advertising on children's networks, ranging from 32% to 36% of commercials.[17,23] This range converges with the present finding that about 32% of ads on the children's networks are for food.

Food advertisements on the children's networks were predominately for sugary cereals and sweets, high-fat food, convenience or fast-food restaurant food, and chips/crackers. These results suggest that little has changed since the publication of Kotz and Story's analysis of Saturday morning programming more than a decade ago.[21] The present study found that 31% of ads on the children's networks were for cereals, usually sugared, which is consistent with that reported in two recent studies.[17,23] The proportion of food ads on children's programming in the fast-food restaurants category was 13.6% in this study, similar to other analyses, which have reported figures in the 10%-12% range.[17,21,23]

As children move into adolescence and begin to watch more youth programming, such as the music video programming offered by BET and MTV, they continue to be exposed to advertisements for food in less-healthful categories. For example, a majority of the food advertisements shown on MTV were on behalf of fast-food restaurants. Eighty percent of MTV food commercials were for items classified in 3 categories: fast food restaurants, sugar-added beverages and sweets.

Little research has been reported on food advertisements appearing on programming targeting African Americans, but 2 recent analyses found that ads in these programs are especially likely to be for fast food and sweets.[36,37] In the present study, BET viewers saw more sugar-added beverage and fat/oil commercials than viewers of other networks; "only" 25% of food commercials were for fast food. This finding is worrisome because fast-food restaurant use is associated with both obesity and type 2 diabetes.[38]

Ironically, it would appear that as people mature and begin to watch more mainstream broadcast networks, they will see many commercials for nutritional supplements that promise to improve health. A commercial was twice as likely to be for a nutritional supplement on mainstream English-language broadcast networks than elsewhere. Indeed, nutritional supplement ads were more common on these networks than ads for dairy products, fruits and vegetables, and grains combined.

To the best of the authors' knowledge, this is the first study of food advertising in Spanish-language American programming. Although the likelihood of an advertisement being for a food product did not differ between English- and Spanish-language general audience networks, commercials on Spanish-language programming were more likely to be for alcohol and fast-food restaurants, which together account for a majority of the food commercials on these networks. These messages are being presented at a time when Hispanics in America are becoming increasingly obese.[2]

The selling propositions used to market food differed based on the type of food featured in these commercials. Economical appeals and special offers were used primarily by fast-food restaurants; novelty claims were used to promote fast food, sweets, and cereals; and fun was used as a selling point for sweets and chips/crackers. Nutritional claims were advanced primarily for products falling into the categories of nutritional supplements, cereals, grains, and fruits and vegetables. However, the most unexpected finding was how infrequently nutritional claims were made. Regulations barring advertisers from making deceptive claims may contribute to this finding. The authors also suspect that as television commercials have grown shorter, with the 15-second commercial now the norm, specific verbal claims have been sacrificed in favor of brief, enticing visual presentations.

The authors found little evidence that unhealthful food advertisements are countered with healthful nutrition messages in the form of PSAs. The typical viewer during the time slots studied would have seen just 1 such PSA for every 63 food commercials aired. This finding contrasts with a rate of about 15 food ads per PSA in the Kotz and Story study,[21] and 33 ad minutes per minute of PSA broadcasting in the Powell et al investigation.[17] It appears that pronutrition PSAs air too infrequently to serve as an antidote to unhealthful food ads.

This study is not without limitations. First, a content analysis can describe the nature of food advertising, but not its effects. Second, the present analysis was limited to programming that aired at times when children and adolescents are likely to be watching and thus cannot be extended to prime time or other periods. Third, the authors did not undertake an analysis of the specific nutritional content of the advertised food. The authors are thus limited to drawing conclusions based on broad product categories (such as "sugar-added beverages") rather than specific food items.

IMPLICATIONS FOR RESEARCH AND PRACTICE

Study after study has documented the adverse health effects of food advertising targeting children and adolescents. Health educators need to develop and evaluate comprehensive nutrition programs that augment nutritional education with media use reduction strategies to lessen exposure to ads. School- and family-based programs that have attempted to reduce children's media use have shown promise.[39]

Reduced media use is insufficient by itself, for food advertising has increased in other types of media children use, such as the Internet.[40] Thus efforts should also be made to introduce media literacy training into nutrition programs.[41] Evaluations of nutrition-focused media literacy interventions have been rare.[42] Such literacy training can help children and adolescents understand both the economic motivations behind food advertising and the strategies used by industry to increase desire for their products. Greater awareness of the potential influence of industry may immunize young people from food advertising's deleterious effects.

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